ADVANCED ELECTRONIC APPLICATIONS, INC.

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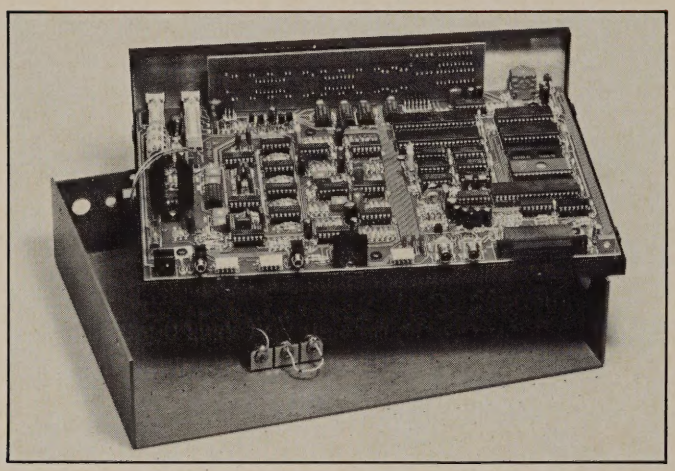
Advanced Electronic Applications . . .
We Bring You the Breakthroughs.

Over ten years ago AEA was formed with the idea of selling a special product to amateur radio operators. This innovative product, the AD-1 autodialer, was built around an internal 3870 microcomputer. In fact, AEA was the first company to use this high technology in amateur radio products. From the very beginning AEA has been working hard at bringing you the breakthroughs of new technology.

Today AEA markets an extensive line of data controllers, antennas, and specialty transceivers. Innovation and quality can be seen in every AEA product. Our patented Isopole antenna offers decoupling advantages you can't find in any other amateur antenna. The multimode PK-232 gives you six transmit/ receive modes in a single unit. With the introduction of our new transceivers we also offer you new technology for faster packet communication and portable HF operation.

Advanced Electronic Applications . . .
Quality Products and Dedicated Service



Manufacturing products for amateur radio is different from most consumer electronics manufacturing. We know that most of our customers enjoy looking inside the unit to see how and why it works. That kind of curiosity is what made you interested in amateur radio in the first place. So we are dedicated to quality inside and out. We also know that sharing our technology by providing schematics and technical data helps you to see why AEA is the best you can buy.

As with any high technology product we believe that service after you buy is just as important as quality before you buy. In fact AEA has three times more service technicians than we do salesmen. These technicians are trained to provide service assistance on the phone and via mail. They also strive to make our repair turnaround time the shortest in the industry.

Advanced Electronic Applications . . .
Committed to Amateur Radio

Our ten year history in amateur radio is just the tip of the iceberg. We have over 218 years of licensed amateur experience on staff with AEA. This experience gives us the ability to recognize the need for AEA to be involved in all aspects of the amateur service. As an example, AEA presents an annual Amateur Ambassador Award to an amateur who goes the extra mile in promoting amateur radio to those outside the service. This $1,000 award is our way of saying keep up the good work to people like Mary Duffield WA6KFA and Byron Lindsey W4BIW. Our 1988 award will be presented at the ARRL National in Portland Oregon. Contact AEA for nomination information.

Advanced Electronic Applications . . .
Our Friends Call Us AEA

During the last ten years we have made lots of friends in amateur radio. We hope you are one of them. If you haven't tried one of our products please consider our current line displayed in this catalog. We also hope all our old friends will look at the new items we have to offer. The AEA staff and all our dealers will do our best to provide you innovative products that make amateur radio fun and exciting. .

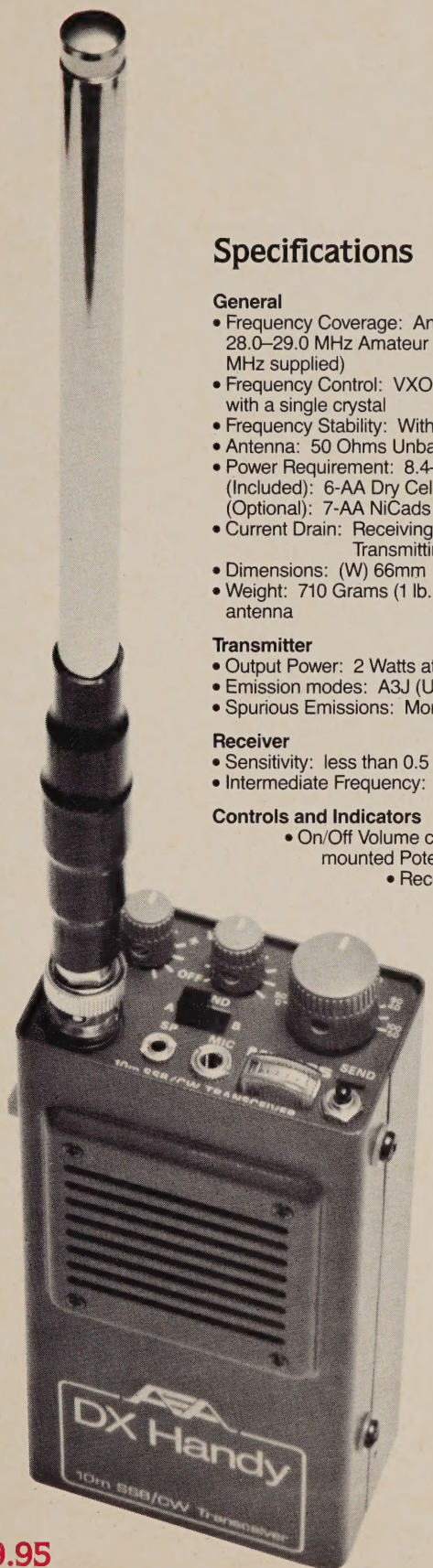
Handheld DX with the DX Handy™

The idea of handheld DX seems far-fetched, but it's actually very simple. The DX Handy is a battery powered (six penlight AA drycells included) SSB/CW transceiver with two watts output. DX Handy can also use nicad rechargeable batteries, or be powered with 9 VDC.

Two variable crystal oscillators (VXOs), each with 50 KHz range, can be selected with a top panel switch. Crystals for 28.250 to 28.300 and 28.300 to 28.350 Mhz are included, and other crystal ranges for the 10 meter band are also available at a nominal cost.

CW operation can be by either the built-in push button or with an external key or keyer. External speaker and microphone jacks are also provided, and the telescoping antenna is included. The DX Handy also has a top panel S-meter/ output power meter and an effective noise blanker circuit. DX Handy is housed in an attractive gray metal case comparing in size to popular VHF FM handhelds.

Ten meters is coming back strong. With DX Handy all amateurs, novice to extra class, can enjoy the thrill of working handheld DX.



Specifications

General
- Frequency Coverage: Any two 50 KHz segments in the 28.0–29.0 MHz Amateur Band (28.25–28.30 and 28.30–28.35 MHz supplied)
- Frequency Control: VXO provides 50 KHz of continuous tuning with a single crystal
- Frequency Stability: Within ±500 Hz from a cold start
- Antenna: 50 Ohms Unbalanced, BNC connector
- Power Requirement: 8.4–9.0 VDC
  (Included): 6-AA Dry Cells (1.5 volt/cell) = 9.0 VDC
  (Optional): 7-AA NiCads (1.2 Volt/cell) = 8.4 VDC
- Current Drain: Receiving - Approx. 70 mA
  Transmitting - Approx. 620 mA
- Dimensions: (W) 66mm × (H) 39mm × (D) 142mm
- Weight: 710 Grams (1 lb. 9 oz.) with batteries and antenna

Transmitter
- Output Power: 2 Watts at 9.0 VDC
- Emission modes: A3J (USB) and A1 (CW)
- Spurious Emissions: More than 40 dB down

Receiver
- Sensitivity: less than 0.5 uV for 15 dB S/N
- Intermediate Frequency: 11.2735 MHz

Controls and Indicators
- On/Off Volume control Top mounted Potentiometer
- Receiver Incremental Tuning (RIT): Top mounted Potentiometer with center off detent position
- Frequency: Top mounted 50 KHz VXO
- Frequency Range: Top mounted 2-position switch
- Noise Blanker: Top mounted On/Off switch
- S/RF meter: Top mounted S/RF meter
- Built in CW key: Top mounted momentary switch
- External Speaker output: Top mounted 1/16" phone jack
- External Microphone input: Top mounted 1/8" phone jack
- Antenna Connector: Top mounted Female BNC
- Transmit Indicator: Top mounted Transmit LED
- Push-To-Talk: Side mounted momentary switch
- External Power: Bottom mounted 2.1 mm coaxial
- External key input: Bottom mounted 1/8" phone jack
- Mode Selector Switch: Bottom mounted 2-position switch
- Charge/External Power: Bottom mounted 2-position switch selecting 12 VDC external power function

AEA Retail $379.95 **Amateur Net $319.95**

Specifications and prices subject to change without notice or obligation.

RFM–220™ Radio Modem

The new RFM-220 Radio Modem is really more than just a radio, it's a high speed packet modem and 220 transceiver combination.

The RFM-220 is the next step in packet radio technology. When attached to a packet TNC (like the AEA PK-87 or PK-232) the RFM-220 high speed modem can be used to transmit and receive data at up to 19.2 K Baud. Achieving these faster data rates required AEA to draw on years of packet experience and the ability to design a transceiver/modem combination as a single unit. The RFM-220 modem is compatible with all TNCs that are equipped with an external modem disconnect.

In addition, the RFM-220 is a fully synthesized transceiver that covers the entire amateur 220 Mhz band with adjustable output from 1 to 25 watts. The CPU controlled synthesizer offers 100 memory channels with memory and band scan. The RFM-220 has programmable Transmit/Receive offset in 10 KHz steps from 10 KHz to 5 MHz.

Designed for high speed data transmission, the RFM-220 is also a high fidelity voice transceiver with deviation settable from 4 to 10 KHz. Receiver sensitivity is .6 microvolt for 12 db SINAD. Superior sensitivity, selectivity, and dynamic range is achieved using a GaAs FET receiver front end and multiple helical resonators. The RFM-220 is powered by 13.5 VDC (external supply required), 2 amps on receive - 8 amps on transmit.

The RFM-220 is designed for those who are ready for the next breakthrough in packet technology.

AEA Retail $795.95 **Amateur Net $699.95**

Specifications

GENERAL
- Dimensions: 11¼ × 8½ × 3¼ in. exclusive of heatsink
- Case: Sheet Metal, Painted
- Weight: 8 pounds
- Power: 13.5 VDC (12 to 16), 2 A Receive, 6 A Xmit,
- Fuse: 8 Amp internal
- Antenna Connector: SO239
- PC Boards: 5 (Controller, RF, Display, Oscillator. Amp)
- Speaker: Internal, Defeated using Ext Spkr jack
- Certification: Part 15 Subpart J FCC Specifications

PROCESSORS AND MEMORY
- Crystal: 10 MHz (Crystal Oven .5ppm)
- Clock Rate: 2.5 MHz
- CPU: Z80
- RAM: 8 KBytes, expandable to 32KBytes
- ROM: 16 KBytes, Program Memory
- Battery backup: Lithium, 2 Years
- UART: Z80 DART

DATA I/O
- Connector Type: DIN, 5 Pin (TXD RXD SQ PTT GND)
- Signal Levels: TTL
- Radio Baud Rates: 0-19,200 bit per second direct FSK
- AFSK (via mic jack): 300-1200 Baud

VOICE
- Voice Input: Data PTT or Voice PTT determines mode
- Settable Deviation: 4-10 KHz, Continuously variable, internal pot

PROGRAMMING
- Band Scanning: Upper/Lower Freq Settable Endpoints, 5 KHz steps, resumes on absence of signal
- Memory Scan: Up to 100 channels, scanned in increasing channel order
- Functions Programmable: Frequency, TX Offset, Frequency Memories, Bandscan Limits, Transmit, Receive
- Program Input: Via 5-pin DIN RS-232C connector, 300/600/1200/2400/4800/9600 Baud; 7 data bits, even parity, 1 stop bit
- Command Structure: Two character mnemonic plus argument; defeatable acknowledge

RADIO
- Emission Type: 20F9 for 19.2 KBaud bit rate
- Operating Frequency: 220 - 225 MHz in 5KHz steps
- Frequency Offset: Programmable 10KHz steps. 10KHz to 5 MHz
- Crystal: 10 MHz, Ovened

Transmitter
- Power Output: 1-25 Watts, Continuously Variable (internal adjustment)
- FM Hum and Noise: −50 db
- Spurious/Harmonic Output: −60 dbc
- Response Time: Full power output response to a TTL transition at PTT plus 5 msec

Receiver
- Sensitivity: .6 microvolt for 12 db SINAD
- IF Selectivity: 30 KHz at 6 db
- Response Time: Recognizes a received bit at PTT drop plus 5 msec
- Front End: GaAs FET, Multiple Helical Resonators

CONTROLS AND INDICATORS

Front Panel
- Mic Connector: 8 Pin (Mic, PTT, Gnd, Up, Down)
- S Meter: S/RF
- Frequency Readout: 4 Digit LED
- Power Switch: 2 Position, Toggle
- Frequency: 3 Position, Up, Down, Center Off
- Scan Limit Switch: 3 Position, Scan Max, Scan Memory, Center Normal
- Volume: Rotary Potentiometer
- Squelch: Rotary Potentiometer
- DCD LED: Unlabeled (On concurrent with incoming signal)

Back Panel
- Power: Two Pin, polarized, Type CB2, with Reverse Voltage Protection
- Baud Rate DIP Switch: 300,600,1200,2400,4800,9600
- RS-232 Connector: 5 Pin DIN (for RFM-220 control)
- Ext Speaker: 3.5 mm Jack
- Amp Control: RCA Jack (PTT to AEA External Optional Power Amplifier), open NPN collector
- Antenna: UHF, (SO 239)
- Heat Sink: Finned, 4½ × 2½ × 1⅜ deep

PK-87™ Packet Controller

Improved hardware and software design make the PK-87 your best choice for a packet-only controller. Integrating the popular packet software from the multi-mode PK-232 with a special AEA TNC hardware design gives you the best of both worlds.

The PK-87 is compatible with the popular TCP/IP protocol, and can be modified for NET ROM operation. The unique host mode of the PK-87 also gives programmers the ability to write special terminal programs (like the AEA PC Pakratt program) for full-featured TNC use. Other software features of the PK-87 allow the operator to restrict the use of the station for both connects and as a digipeater. The mailbox monitoring command allows monitoring without displaying the callsign headers, while standard monitoring includes both MFROM and MTO lists.

While the PK-87 can be used for HF operation, AEA recommends the optional PM-1 packet modem for low band use.

Hardware improvements include front panel LEDs for operating mode (Converse, Transparent, Command) and multiple connects in addition to the standard Data Carrier Detect, Push to talk, Status, and Connect indicators. The PK-87 uses a Zilog 8530 SCC for hardware HDLC, and the modem disconnect of the PK-87 guarantees compatibility with high speed modems (like the AEA RFM-220). For base station, portable, or digipeater operation the PK-87 makes packet radio easy and affordable.

AEA Retail $199.95 **Amateur Net $179.95**

Specifications

Operating Mode
- AX.25V2L2 Packet (previous versions supported)
- Half/Full Duplex

Modem
- Input Sensitivity: 5 mvRMS
- Input Dynamic Range: 5 to 770 mvRMS
- Bypassable via Ext Modem connector for use with external modem
- Hardware Watch Dog Timer—1 minute timeout
- Demodulator: AMD 7910 World Chip
- Modulator: Phase-continuous sinewave AFSK generator
- Modulator output level: 5-300 mvRMS, rear panel adjustable

Processor System
- Processor: Zilog Z80
- RAM: battery backed, 16K Bytes
- ROM: 32K Bytes
- Hardware HDLC: Zilog 8530 SCC

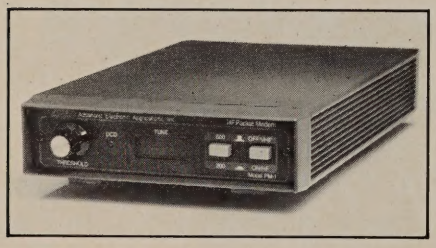
Rear Panel Input/Output Connections
- Radio Interface: 5 pin; Receive audio, Transmit audio, PTT, Auxilliary squelch, Ground
- External Modem: 5 pin; Transmit data, Receive data, carrier detect, Clock, Ground
- Terminal Interface: RS-232 25 pin DB25 connector
- Terminal data rates: 300, 1200, 2400, 4800, 9600 (with autoband select)

Front Panel Indicators:
- Indicators: Operational Mode; Converse, Transparent, Command, Send, Data Carrier Detect, Status, Connect, Multiple Connect

Front Panel Indicators
- +12 to +16 VDC @ 550ma, 2.1 mm power connector, center positive
- AC-1 120 VAC adapter supplied

Physical
- 9.4″ × 5.74″ × 1.8″, 3 lbs.

PM-1™ Packet Modem



The AEA PM-1 Packet Modem is designed to bring your current TNC up to AEA standards for HF operation. The phase locked loop or "world chip" demodulators (used in TNC 2, PK-80, PKT-1, PK-87, TNC-1 and others) work well on VHF FM, but leave a lot of room for improvement in HF radio environments.

The PM-1 connects directly to your TNC and transceiver with no internal modifications to either unit. The PM-1 contains independent dual channel filtering with AM detection for maximum sensitivity and selectivity under poor HF conditions. The PM-1 is optimized for 300 baud operation. A shift frequency of 200 Hz or 600 Hz may be selected from the front panel, and a front panel bar graph tuning indicator is provided to assist the user in precise HF tuning. There is also a front panel squelch control (variable DCD) provided for sensitivity adjustment under various noise conditions. With the PM-1 you can switch between HF and VHF packet operation by simply pushing one button.

AEA Retail $239.95 **Amateur Net $199.95**

Specifications

TNC Connector
- Audio Output (To TNC RX In) 1200, 2200 Hz Nominally 180 mv rms

Pin 2
- Audio Input (From TNC TX Out) 1200, 2200 Hz 15 mv to 5 v rms

Pin 3
- External Squelch

Pin 4
- Ground

Pin 5
- PTT Input

VHF Radio Connector
Connected to TNC connector when PM-1 power switch is off

Pin 1
- Receive Audio 2110 (1710 Hz at 600 Hz shift) 2310 Hz center frequencies, 15 mv to 1 v rms

Pin 2
- Transmit Audio 2110 (1710 Hz at 600 Hz shift 2310 Hz, 0 to 100 mv rms rear panel adjustable Active only during TNC PTT

Pin 3
- External Squelch - Connected to TNC pin 3 when power switch is on

Pin 4
- Ground

Pin 5
- HF Transmitter PTT - Also selected by PM-1 power switch

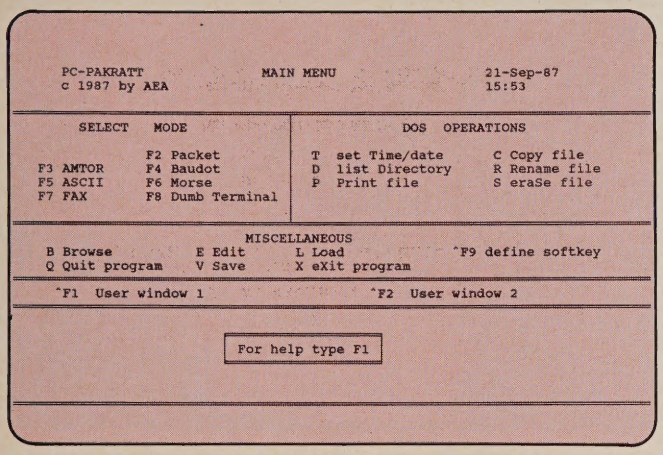
HF Receive Demodulator
Two 4 pole Chebyshev .5 db ripple channel filters follwed by twin full wave detectors and an automatic threshold corrector. Followed by a 2 pole Chebyshev low pass filter to enhance weak signals.

Power Requirements
12 to 15 VDC at 200 ma. (not supplied)

Physical
6″ × 2″ × 10″ ×, 2 lbs. 8 oz.

New IBM and Commodore PK-232 Terminal Programs

The most popular multi-mode data controller in amateur radio just got better, and we didn't change a thing. Two new programs written just for the AEA PK-232 simplify operation while taking full advantage of the features of the PK-232. PC Pakratt (for use with IBM and IBM clone computers) and Com Pakratt (for use with Commodore 64 and 128 computers) are special programs that offer split screen display, packet status displays, disk operation, and programmable memories. By using the internal PK-232 Host mode (a kind of computer to computer shorthand) these menu driven programs make Morse, Baudot, ASCII, AMTOR, Packet, and FAX operation easy for those new to computers and more fun for the experienced operator.



PC Pakratt Main Menu Screen

PC Pakratt™

Friendly Help Menu—Defines commands and parameters on screen.

Up to 64K byte QSO Buffer—Stores incoming data for editing and retransmission.

Built in Editor—Simple yet full featured text editor.

Color Monitor Compatibility—Select border, character, and background colors.

Ten Message/Command Buffers—Pre-program messages or commands for transmission with a single keystroke.

Disk Operation—Supports disk directory, file transfer, and storage of data received.

The PC Pakratt program requires 320K RAM minimum and DOS version 2.1 or higher. The program is available on a single 360K DS/DD disk and two disk drives are recommended.

AEA Retail $ 29.95 **Amateur Net $ 24.95**

Com Pakratt™

TTL to RS-232 Interface Included—Hardware interface needed for Commodore/PK-232 operation is included in the package.

Program on Cartridge—Plug-in cartridge eliminates need for disk or cassette drive.

Easy Multi-channel Packet Operation—Each channel has a separate screen.

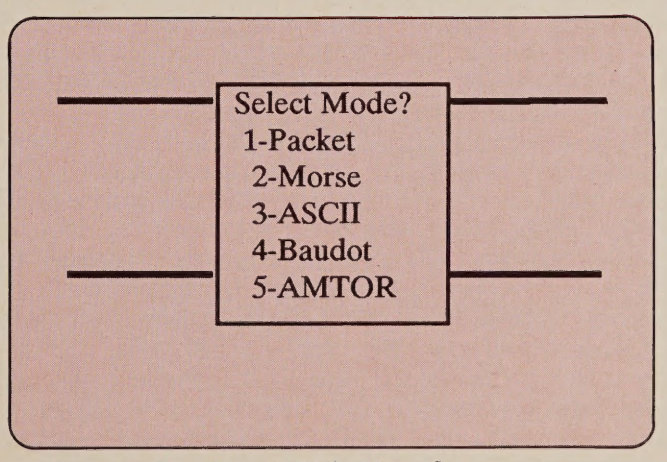
Disk Operation—Supports disk directory, file transfers, and storage of data received.

Ten Message/Command Buffers—Six preset and four programmable memories for CQ, QBF, RY, Time, Callsign, and Selcal.

Color Monitor Compatibility—Select background, text, highlight, and echo colors.

Com Pakratt supports printer output for Morse, Baudot, ASCII, AMTOR, and Packet to Commodore printers directly from the computer. FAX printing requires a parallel printer, or a parallel to serial printer interface for a serial printer, and is accomplished directly from the PK-232.

AEA Retail $ 69.95 **Amateur Net $ 59.95**



Com Pakratt Main Menu Screen

The PK-232™ Multimode Data

The PK-232 does more than any other amateur radio interface. Only the PK-232 gives you six modes, including Weather FAX, Morse code, Baudot, ASCII, AMTOR, and Packet. Only the PK-232 puts it all together in a single unit that has both VHF and HF modems included. Only the PK-232 gives you the performance you expect from AEA.

The PK-232 makes any RS-232 compatible computer or terminal the complete amateur digital operating position. All decoding, signal processing, and protocol software is on ROM in the PK-232. Only a simple terminal program (like those used with telephone modems) is required to interface the PK-232 with your computer. The PK-232 package includes a special terminal /printer "Y" cable that connects the PK-232 to both the serial RS-232 port of the computer and the parallel printer port for FAX printing.

The real strength of the PK-232 is its superior design. The PK-232 is a Z-80A based system and has hardware HDLC using the Zilog 8530 SCC. The internal modem of the PK-232 can transmit packet at rates from 24 to 1200 baud, with the option of using an external modem for higher baud rates up to 9600 baud (modifiable for 19.2 K baud). The PK-232 also has a no compromise VHF/HF/CW modem with an eight pole bandpass filter followed by a limiter discriminator with automatic threshold correction. The PK-232 modem can copy shifts from 85 to 1500 Hz in two ranges. Transmitter tones are low distortion sinewave phase continuous AFSK, Bell 202 standard (1200-2200 Hz) for VHF, and 2110-2310 (compatible with 170Hz shift for RTTY) for HF.

The PK-232 internal software includes special features like SIAM™ (Signal Identification and Acquisition Mode). This mode lets you tune an unidentified signal and watch the PK-232 decide the incoming signals' mode, baud rate or speed, and configuration. Additional commands even allow you to decode simple types of Baudot encryption. In addition to Baudot, ASCII, and AMTOR, the PK-232 will copy the third register cyrillic alphabet of five level baudot, and Japanese Katakana and Russian Cyrillic Morse code.

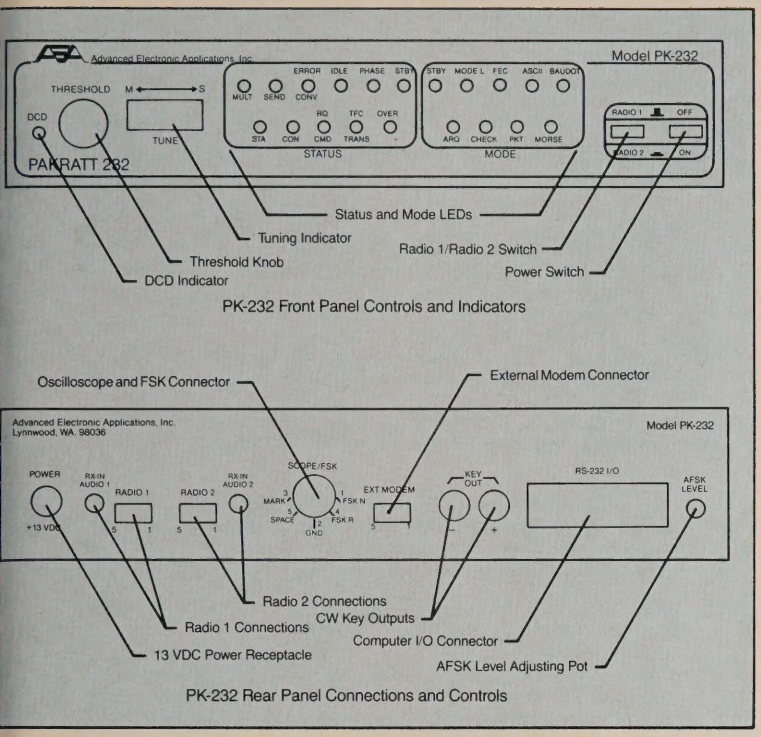
In packet the PK-232 internal program is also compatible with the popular TCP/IP networking protocol. This protocol requires the TNC to feature special commands, (Kiss, Persistence, Slottime) not found in all controllers. The p-persistence method of packet channel access is available in both host and verbose modes.

The Host mode (a kind of computer to computer shorthand) of the PK-232 also allows programmers to write special terminal programs, like PC Pakratt and Com Pakratt, for full featured multimode operation. You can also use the PK-232 with the popular WØRLI and WA7MBL packet bulletin board programs.

Compare the PK-232 to any other amateur controller. You won't find all these features available at any price.

FAX Printing—Many parallel printers can be connected directly to the PK-232 to print HF monitored FAX signals. The PK-232 supports Epson, IBM, and other popular dot matrix graphics printing standards.

Controller



PK-232 Front Panel Controls and Indicators

PK-232 Rear Panel Connections and Controls

Easy Efficient Operation—Twenty-one front panel indicators make multimode operation simple by giving mode and status information at a glance.

Comprehensive User's Manual—With a "Quick Start" section to get you on the air fast , the 328 page manual gives you all you need including schematics and parts list. Technical reference manual is also available.

Battery Backed RAM—No need for "perming," all operating parameter values, including beacon and connect message texts, are saved and continually updated.

Adjustable Threshold Control—Front panel continually-variable 5 mode threshold control permits critical adjustment of effective modem sensitivity and squelches output of "garbage" to screen or printer.

Two Radio Ports—Independent radio connection ports allow interchangeable HF or VHF operation. Front panel push button selectable.

External Modem Disconnect—Internal modem bypass guarantees compatibility with higher speed modems such as the AEA RFM-220.

External AFSK Level Adjustment—Rear panel control permits easy AFSK level changes for different radios and modes.

Scope and FSK Outputs—A separate accessory port gives both scope mark and space outputs and permits connection to your HF radio's FSK input.

Specifications

Modem
- Input Dynamic Range: 5mv to 500 mvRMS
- Bypassable via Ext Modem connector for use with external modem
- Hardware Watch Dog Timer—1 minute timeout
- Onboard calibration software and hardware
- Demodulator: 8 pole bandpass filter, limiter, 4 pole discriminator, 5 pole post-detection low pass filter.
  VHF Packet: 1700 Hz center frequency, 2600 Hz BW
  HF (non CW): 2210 Hz center frequency, 450 Hz BW
  CW: 800 Hz center frequency, 200 Hz BW
- Modulator: Phase continuous sinewave AFSK generator
- Modulator output level: 5-100 mvRMS, rear panel adjustable

Packet Protocol
- AX.25 V2L2 (previous versions supported)

Processor System
- Processor: Zilog Z80
- RAM: battery backed, 16KBytes
- ROM: 32KBytes, 48KBytes max
- Hardware HDLC: Zilog 8530 SCC

Rear Panel Input/Output Connections
- Radio Interfaces: Two 5 pin; front panel selectable (receive audio, transmit audio, PTT, Auxillary squelch, Ground)
- External Modem: 5 pin; Transmit data, Receive data, Carrier detect, Clock, Ground
- FSK Outputs: normal and reverse
- Scope Outputs: Mark, Space
- CW Keying Outputs: +100VDC @ 100 ma max, or −30VDC @ 20 ma max
- Terminal Interface: RS-232-C 25 pin DB25 connector (pins 1-8 and 20 software and hardware handshake)
- Terminal data rates: 300, 1200, 2400, 4800, 9600 baud

Front Panel Controls and Indicators
- Controls: Power, Radio selector, Threshold adjust
- Indicators: Data Carrier Detect LED, 10 Segment HF Bargraph Tuning Indicator, Mode Indicators (Baudot, ASCII, PTT, Morse, Check, FEC, ARQ Mode L, STBY), Status Indicators (STBY, Phase, Idle, ERROR/Conv, Over)

Power Requirements
- +12 to +16 VDC @ 700ma, 2.1 mm connector, center pin positive
- Reverse polarity protection (internal 1 amp fuse)
- Optional AC-4 VAC Adapter available

Physical
- 11″x 8.25″x 2.5″, 3 lbs.

AEA Retail $379.95 **Amateur Net $319.95**

CP-100 Computer Patch™

The RTTY Terminal Unit DXers Choose

The Computer Patch CP-100 Interface is a complete terminal unit for Morse, Baudot, ASCII, and AMTOR. It will interface a computer running special communications software (like MBA-TOR or SWL-TEXT) via TTL levels (RS-232 optional) to your radio. AEA has the MBA-TOR program for use with the Commodore 64, and two similar programs for use with Apple and IBM computers.

The tuning indicator is a ten segment bargraph featuring discriminator-type operation which graphically shows selective fading and is IDEAL for AMTOR use (tuning scope outputs are also available). The CP-100 also features a front panel squelch control which inhibits data to the computer when no signal is present, preventing print when receiving noise. Front panel selection of 110 and below or 300 baud operation is provided, along with an internal monitor speaker. With the optional current loop provisions the CP-100 can be used with a mechanical teleprinter. The CP-100 is housed in an attractive metal case, minimizing any potential RF interference effects.

AEA Retail $369.95 **Amateur Net $329.95**

Specifications

Front Panel Controls/Indicators
- Bargraph Tuning Indicator—10 segment—Discriminator Style
- Shift (170, 425, 850, CW)—Pushbutton
- Power On/Off—Pushbutton
- Power Indicator—LED
- Squelch
- Baud Rate Switch
- Delta Frequency Tuning (Variable Shift)
- Speaker Switch
- Manual Transmit Switch
- Mark/Space Inversion Switch
- Power Switch
- Power LED

Rear Panel
- Coaxial Power Connector—Center Pin Positive
- TTL Computer Connector—5 pin Molex
- CW Plus/Minus Keying Outputs—RCA Jacks
- FSK Normal/Reverse Outputs—RCA Jacks
- AFSK Lever Control—Screwdriver Pot
- Audio Input Connector—Miniature Phone Jack—3.5 mm
- Audio Output Connector—Miniature Phone Jack—3.5 mm
- Scope Outputs (Mark/Space)—RCA Jacks
- Keying Input—¼ inch Phone Plug Jack
- Optional Current Loop Connector and RS-232 Connector

Filters
- Two four-pole (.5db ripple) Chebyshev Filters Mark 2125; Space 2200 to 3125 Adjustable Shift Range 75-1000 Hz
- CW Filter—750 Hz Center, 180 Hz Bw
- Five Pole Post Detection Low Pass Filter

Input
- 5 mv to 5V RMS (Speaker off), 60 db range, AGC
- 5 mv to 1.5 V RMS (Speaker on)
- 10 k ohms input impedance (Speaker off); 8 ohms (Speaker on)
- Computer I/O—Industry Standard 5 pin TTL; RS-232 Optional

Power
- 12-16 VDC, 300 ma

Output
- AFSK 2125 Mark, 2295, 2250, 2975 Space for 170, 425 850 shift Amplitude 5 to 100 mv, adjustable Impedance 600 ohms
- Keying: Positive and Negative RCA Plugs
- FSK: Open Collector—Normal and Reverse
- Scope: Mark and Space Filter Outputs
- PTT: Plus and Minus, Internally Selectable
- To Computer: 5 pin TTL
- Current Loop 20 to 60 ma, optional

Physical
- Metal Case, 11 × 8 × 2.5 inch, 48 oz.

MBA-TOR 64™

The MBA-TOR 64 program is a user friendly software package for transmission/reception of Morse, Baudot, ASCII, and AMTOR. Options of the menu driven program include split screen display, type ahead buffer, QSO buffer, disk and cassette storage of QSOs, printer output, editing functions, and much more. The MBA-TOR package includes the ROM cartridge, computer cable, keyboard overlays, manual, and is compatible with the Commodore 64, 128, and 64-C.

Amateur Net Price $99.95
AEA Retail $119.95

SWL-TEXT 64™

The SWL-TEXT program is receive only software with special features developed for the shortwave listening enthusiast. Tracking digital signals can be exciting with features like timing analysis, bit inversion and transposition, Russian RTTY, Russian and Japanese Morse, and much more. The SWL-TEXT package includes the ROM cartridge, computer cable, keyboard overlays, manual, and is compatible with the Commodore 64, 128, and 64-C.

Amateur Net Price $99.95
AEA Retail $119.95

AEA HOT ROD™

High Performance Hand-Held Antenna

The Hot Rod antenna makes the same improvement to hand-held communications that the IsoPole antennas have made to base station operation. Achieve 1 or 2 db gain over ANY 5/8 wave two meter telescopic antenna. The factory tuned HR-1 is 20% shorter, lighter and places far less stress on your hand-held connector and case. It will easily handle over 25 watts of power, making it an excellent emergency base or mobile antenna. In the collapsed position, the Hot Rod antenna will perform like a helical quarter wave. Three Hot Rods are available: HR-1 ½ wave 2M Ant., HR-2 for 220 Mhz. and HR-4 for 440 Mhz. The HR-4 is a flexible ½ wave "duck" antenna that is 16 inches long.

Amateur Net $ 19.95
AEA Retail $ 24.95

MU-64 Morse University™

Makes Learning Morse Code Easy and Fun

The Morse University program and a Commodore 64 computer can make learning Morse code easier that you ever thought. With the Learning Routine you'll learn the individual characters and numbers. The Proficiency Routine helps you increase your speed by generating random characters in groups. The Sending Anlaysis lets you check your fist by graphically displaying the characters you send using the keyboard function keys. You can even use your new skills to play the Receiving Game. A video game that shoots the antenna off your house with lightning bolts if you don't type in the characters sent.

The Morse University program is a ROM cartridge that plugs directly into the computer and does not require a disk drive. Morse University is compatible with the Commodore 64, 128, and 64-C.

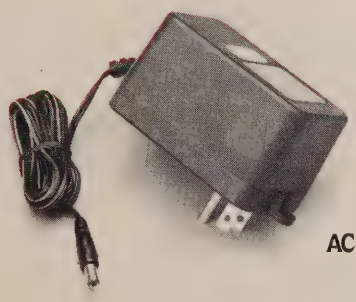
Amateur Net Price $39.95 AEA Retail $49.95

Accessories

AC-1 Power Adapter

The AC-1 nominal 12 VDC wall adapter is a suitable power supply for all AEA products requiring 12 VDC at 600 ma or less current. The AC-1 comes with a six foot power cord and a standard 2.1 mm (center pin positive) coaxial power plug that mates with all AEA products. The AC-1 can also be used for any load requiring filtered, but unregulated nominal 12 VDC at 600 ma or less.

Amateur Net Price $14.95
AEA Retail $19.95



AC-1

AC-4

AC-4 Power Adapter

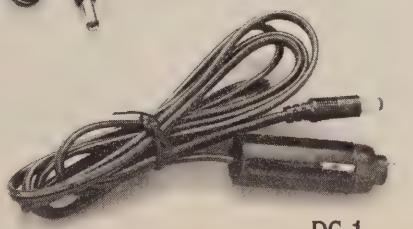
Same as AC-1 except 1 amp output.

Amateur Net Price $24.95
AEA Retail $29.95

DC-1 Cigarette Lighter Cord

The DC-1 is a fused cable with a standard cigarette lighter plug on one end and a 2.1 mm (center pin positive) coaxial cable plug on the other end.

Amateur Net Price $5.95
AEA Retail $6.95



DC-1

Improve VHF/UHF Performance with the IsoPole™ Antennas

Outstanding mechanical and electrical design makes the IsoPole the only logical choice for a VHF base station antenna. All IsoPole antennas yield the maximum gain attainable for their respective lengths and a zero degree angle of radiation. Exceptional decoupling results in simple tuning and a significant reduction in TVI potential. Cones offer great efficiency over obsolete radials which radiate in the horizontal plane and present an unsightly birds roost with an inevitable "fallout zone" below. The IsoPoles have the broadest frequency coverage of any comparable VHF base station antenna. This means no loss of power output from one end of the band to the other, when used with SWR-protected solid state transceivers. Typical SWR is 1.4 to 1 or better across the entire band!

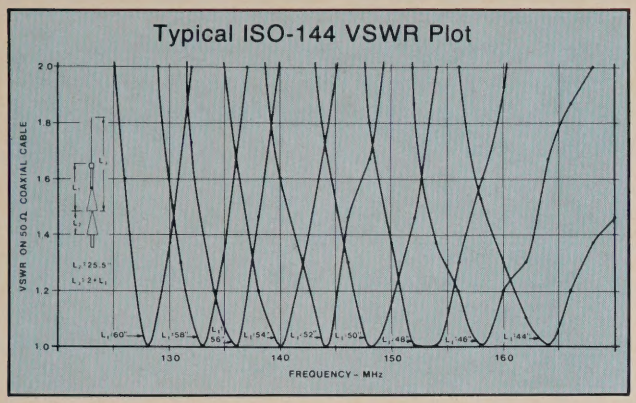
For VHF versions, a standard 50 Ohm SO-239 connector is recessed within the base sleeve (fully weather protected). With the IsoPole, you will not experience the aggravating deviation in SWR with changes in weather. The impedance matching network is designed for maximum legal power and even compensates for the impedance lump introduced by the SO-239 connector used in VHF models.

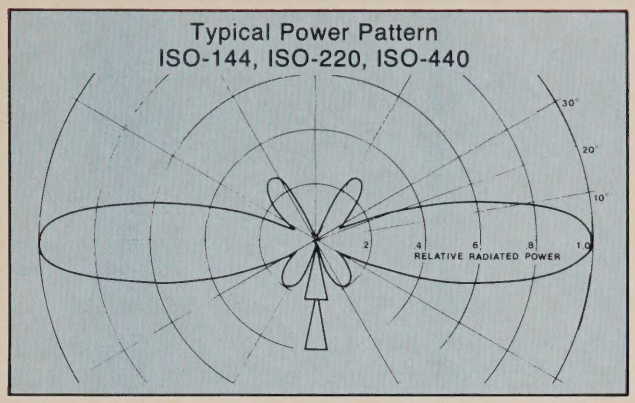
The insulating material offers superb strength and dielectric properties plus excellent long-term ultra-violet resistance. All mounting hardware is stainless steel. The decoupling cones and radiating elements are made of corrosion resistant aluminum alloys. The aerodynamic cones are the only appreciable wind load and are attached directly to the support (a standard TV mast which is not supplied).

Isopole 144
AEA Retail $59.95 Amateur Net $49.95

Isopole 220
AEA Retail $59.95 Amateur Net $49.95

Isopole 440
AEA Retail $84.95 Amateur Net $69.95





Specifications

MODEL	144	220	440
Freq. Coverage (Mhz)	135-160	210-230	415-465
Impedance	50 Ohm	50 Ohm	50 Ohm
2.1 VSWR bandwidth	>10Mhz @ 146Mhz	>15Mhz @ 220Mhz	>22Mhz @ 435Mhz
Power rating	1 kw	1 kw	1 kw
Gain* (actual measurment)	3 dbd	3 dbd	3 dbd
Radiating Element Length	125.5" (3.2m)	79.25" (2m)	46" (1.2m)
Wind Area	<1 sq. ft.	<.75 sq. ft.	<.20 sq. ft.
Maximum Mast OD	1¼" (32mm)	1¼" (32mm)	1¼" (32mm)
Minimum Mast Length**	8 ft. (2.4m)	5½ ft. (1.6m)	6" (150mm)
Shipping Weight	5 lbs.	4 lbs.	2.5 lbs.
Coax Connector	PL-259	PL-259	Type N
*dbd—db gain over a dipole in free space			
**Mast not included			

Our Customers Say It Best . . .

The Isopole design is tried and true. For over eight years AEA has been selling this unique antenna to amateurs around the world. The reports we get from our customers tell the story.

I have had a two meter Isopole in service for three or four years now. Love it.
I. H. Princeton WV

Isopole can't be beat for ease of construction. Its performance is superb. I have a friend who says the Isopole ourperforms his eleven element beam. *G. S. Greensboro NC*

Good reports, superior performance. Recommended by several hams as best on market regardless of price. *D .W. Panama City FL*

Had an Isopole in Hawaii. Stood up to corrosion well. *R. S. Union City CA*

I had an Isopole before and went to a beam. The Isopole is a better all around antenna.
S. K. Russels Point OH

I like the straightforward instructions and simple design of the Isopole.
D. G. Sterling Heights MI

Many ham friends highly recommend it. Glad I listened to my friends. Very happy with the Isopole. *W. M. Louisville KY*

Win a Free PK-232™ Multimode Controller

AEA wants to know all about you. Please take just a few minutes to answer the questions below. Then mail the survey to AEA and we will enter your name in a drawing for a free PK-232 Multimode Controller. The drawing will be held on May 15, 1988. All surveys received after that date will not be eligible for the drawing. No purchase is necessary, but we ask you return only one survey, and that you provide all the information requested.

Name _____ Call _____

Address _____

City _____ State _____ Zip _____

Do you want to remain on the AEA mailing list? Yes _____ No _____

Do you own any AEA products? (If yes, which ones) _____

_____

Do you own a computer? (If yes, which one) _____

Do you currently use your computer for amateur radio? Yes _____ No _____

Which Amateur magazines do you subscribe to? (Please circle)

QST Ham Radio CQ 73 Worldradio News CTM Other _____

What HF transceiver do you use? (Make and Model) _____

What HF antenna do you use? (Made and Model) _____

What VHF/UHF transceiver do you use? (Make and Model) _____

What VHF/UHF antenna do you use? (Make and Model) _____

How much time do you spend in each of the following modes during an average week?

Voice _____ Radioteletype _____

Packet _____ CW _____

AMTOR _____ Satellite _____

Slow Scan _____ Other _____

List the Hamfests you have attended in the last year? _____

_____

How do you make most of your amateur radio purchases? Circle One

In person at the store At a Hamfest Mail Order Flea Market

Do you like to buy product via the 800 phone numbers? Yes _____ No _____

Rank in order (1 as most important) these factors in deciding which product to buy.

Company Name _____ Recommendation of Friends _____

Price _____ Documentation _____

Warranty _____ Availability _____

What was the last amateur radio product you purchased? _____

What will be the next amateur radio product you purchase? _____

Thank you for taking the time to fill out our survey. Please mail the survey to:

AEA Customer Survey, P.O. Box C-2160, Lynnwood, WA 98036

AAA Form Yes _____ No _____

P.S. One final question. Do you know someone that could be nominated for the AEA Amateur Ambassador Award? We will present a $1000 check to one amateur at the ARRL National Convention in 1988. This amateur must be nominated by another amateur for exceptional work in promoting the amateur service to those outside the hobby. If you would like more information, and a nomination form simply check the yes line above.

Authorized Dealers — Ordering Information

AEA is represented by the finest amateur radio dealers. These dealers offer the best prices on AEA products. The AEA Retail price is the cost for ordering the product direct from the factory. Washington residents add 7.8% sales tax. Factory direct orders also require $5.00 shipping and handling for U.S. orders, foreign orders please send inquiry for shipping and handling costs. The Amateur Net price is the advertised price for purchase through most of our Authorized Dealers. Please contact one of the dealers listed below to purchase AEA products.

ARIZONA

Ham Radio Outlet
Phoenix, 602/242-3515

Pace Engineering
Tucson, 602/888-3333

CALIFORNIA

Ham Radio Outlet
Anaheim, 800/854-6046
714/761-3033

Ham Radio Outlet
Burlingame, 415/342-5757

Ham Radio Outlet
Oakland, 415/534-5757

Ham Radio Outlet
San Diego, 619/560-4900

Ham Radio Outlet
Van Nuys, 818/988-2212

Henry Radio
Los Angeles, 800/421-6631
213/820-1234

Jun's Electronics
Culver City, 213/390-8003
800/882-1343

Quement Electronics
San Jose, 408/998-5900

COLORADO

C.W. Electronics
Denver, 303/832-1111

Colorado Radio Center
Denver, 303/288-7373
800/227-7373

DELAWARE

Delaware Amateur Supply
New Castle, 302/328-7728
800/441-7008

FLORIDA

Amateur Electronic Supply
Clearwater, 813/461-4267

Amateur Electronic Supply
Orlando, 305/894-3238
800/327-1917

Eli's Amateur Radio Inc.
Ft. Lauderdale, 305/525-0103

Mike's Elec. Dist. Co.
Ft. Lauderdale, 305/491-7110

Quad Elec
Pensacola, 904/438-3319

GEORGIA

Doc's Communications
Rossville, 404/866-2302

Ham Radio Outlet
Atlanta, 404/263-0700

HAWAII

Honolulu Elec
Honolulu, 808/949-5564

IDAHO

Ross Distributing Co.
Preston, 208/852-0830

ILLINOIS

Erickson Communications
Chicago, 800/621-5802
312/631-5181

Floyd Electronics
Collinsville, 618/345-6448

INDIANA

Ham Station (The)
Evansville, 812/422-0231
800/523-7731

KANSAS

Amateur Radio Equipment Co.
Wichita, 316/264-9166

MASSACHUSETTS

Tel-Com Inc.
Littleton, 617/486-3400

MICHIGAN

Den-Tronics
Flushing, 313/659-1776
800-PACKITT

Michigan Radio
Mt. Clemens, 313/469-4656

MINNESOTA

TNT Radio
Robbinsdale, 612/535-5050

MISSISSIPPI

Hooper Electronic Supply
Biloxi, 601/432-0584

MISSOURI

Missouri Radio Center, Inc.
Kansas City, 816/741-8118
800/821-7323

NEW HAMPSHIRE

Rivendell Electronics
Derry, 603/434-5371

NEW JERSEY

KJI Electronics
Cedar Grove, 201/239-4389

NEVADA

Amateur Electronic Supply
Las Vegas, 800/634-6227
702/647-3114

Reno Radio
Sparks, 702/331-7373
800/345-5686

NEW YORK

Barry Electronics
New York, 212/925-7000

VHF Communications
Jamestown, 716/664-6345

NORTH CAROLINA

Williams Radio Sales
Colfax, 919/993-5881
800/523-0347

OHIO

Amateur Electronic Supply
Wickliffe, 216/585-7388
800/321-3594

R & L Electronics
Hamilton, 513/868-6399

Universal Amateur Radio
Reynoldsburg, 614/866-4267

OREGON

Antronics of Oregon
Aloha, 503/642-7373

Portland Radio Supply Co.
Portland, 503/228-8647

PENNSYLVANIA

Ham Store (The)
State College, 814/238-3798

Hamtronics
Trevose, 215/357-1400

SOUTH DAKOTA

Burghardt Amateur Center
Watertown, 605/886-7314

TENNESSEE

Memphis Amateur Radio
Memphis, 800/238-6168
901/683-9125

TEXAS

Austin Amat. Radio Supply
Austin, 512/454-2994
800/423-2604

Electronic Center, Inc.
Dallas, 214/526-2023

Kennedy Associates
San Antonio, 512/333-6110

Madison Electronics
Houston, 800/231-3057
713/520-7300

Stephens Electronics
Corpus Christi, 512/991-6789

Texas Comm Center
Houston, 713/957-8011
800/227-8011

Texas Towers
Plano, 214/422-7306
800/272-3467

Valley Radio Center
Harlingen, 512/423-6407

VIRGINIA

Electronic Equipment Bank
Vienna, 703/938-3350
800/368-3270

WASHINGTON

ABC Communications
Seattle, 206/364-8300

Amateur Radio Supply
Seattle, 206/767-3222

C-Comm
Seattle, 800/426-6528
206/784-7337

Wanzer Company
Spokane, 509/928-3073

WISCONSIN

Amateur Electronic Supply
Milwaukee, 800/558-0411
414/442-4200

CANADA

British Columbia
Com-West Radio Systems
Vancouver 604-321-1833

Ontario
Atlantic Ham Radio
Downsview 416-636-3636

Advanced Electronic Applications, Inc.
P.O. Box C-2160 Lynnwood, WA 98036
206-775-7373

New AEA World Clock

Amateur radio can take you around the world, and the new AEA World Clock lets you know the proper time when you get there. With dual digital displays you see local time and any of 24 selected time zones side by side. The slide bar on the bottom of the clock can be moved to the city/zone you want, and the display automatically changes to the proper time for that time zone.

24 Hour Display—Both displays show 24 hour time. ▪ **Lighted Display**—Light button for night viewing.
Daylight Savings Switch—Shows Standard/Daylight Savings conversion. ▪ **Batteries Included**—Two AAA batteries installed.
Date Line Indication—Display shows +/- for international day change. ▪ **Compact Size**—2″ × 4.5″ × .5″
Alarm with delay—Six minute snooze feature included with alarm.

The AEA World Clock is perfect for use in the station and travel. A folding easel stand positions the clock for desktop use, and a leather-like travel pouch is also included.

Amateur Net $ 19.95 **AEA Retail $ 24.95**

Free AEA World Clock

Purchase an AEA DX Handy, RFM-220, PK-232, PK-87, PM-1, CP-100, or Isopole antenna between October,1 1987 and April 30, 1988 and receive one AEA World Clock FREE. Limit one per person. Fill in the coupon below and return it WITH THE WARRANTY CARD OF THE PRODUCT PURCHASED AND A COPY OF THE SALES RECEIPT to AEA. All requests must be postmarked before May 15, 1988. THIS OFFER GOOD ONLY IN THE UNITED STATES. Allow 6 to 8 weeks for delivery.

Please type or print. This is your mailing label.

Name_____ Call_____

Address_____

City_____ State_____ Zip_____

All AEA products carry a 90 day warranty on parts and labor. Specifications and prices subject to change without notice or obligation.